

Group 1 Masek

Vision Question:

What science can be facilitated by combining data products and services from the two DAACs? Consider both (1) existing data holdings and (2) future data, especially in the context of developing earth science records from current to future.

What opportunities do you see for enabling Science and Applications from the integration of current LP and ORNL DAAC products, services, or tools?

What new integrated data products from LP and ORNL collaborations would advance NASA's research goals?

- *long-term data records that need to be created or better supported*
- *enhancing existing data products (EOS and PI-led efforts)*
- *new mission and cross-mission data products (current and future)*
- *non-NASA data sources?*

How could the LP DAAC and ORNL DAAC collaborate to meet the modeling community's needs? What data products are required for evaluating and improving model performance? Are new observational campaigns needed to compile these products?

Context...

New satellite missions (VIIRS, LDCM, SMAP, OCO2,... Hysperi)
Cancellation of DESDynI lidar... reliance on airborne assets for veg structure?
Possible new field campaigns
New data products (MEASURES, PI-led)
Push for higher-level Landsat products (USGS)
Renewed importance of airborne data (DBSAR, UAVSAR, AVIRIS, LVIS, CAR...)
Rich international observations (Sentinel, PALSAR, MERIS, ...)
Implementation of NEON activities & permanent sites
Integration of RS observations & models (BGC, land use, DGVM) in assessments

LP-DAAC: large satellite-based data sets & access tools

ASTER L1b & higher-level

MODIS std products

ASTER GDEM

EarthExplorer

DEM Explorer

Mercury (joint w/ LPDAAC)

ORNL DAAC: Field campaign data & tools to support field-based science

MODIS products (via subsets)

Field campaigns (FIFE, BOREAS, LBA...)

PI-led data sets

FluxNet metadata

MODIS subsetting tool

Spatial Data Access Tool

THREDDS

Mercury (joint w/ LPDAAC)

What opportunities do you see for enabling Science and Applications from the integration of current LP and ORNL DAAC products, services, or tools?

“Get me all the data for my site” – need for tools to obtain multiple, cross-disciplinary data from NASA Remote Sensing, field measurements, flux data, etc.

- possible to include links to external data? (ie. “connect me to all the data...”)
- desire for improved extraction of time series (RS + other data)
- data “feeds” for particular locations of interest

Enhance MODIS subsetting by including ASTER, PALSAR, Landsat, and MISR. Include NEON sites in MODIS subsets.

Better descriptions of data provenance, data quality, & quantitative uncertainty (per-granule, area, pixel)

Citizen science, social media & Wikis

- citizen contributed data (“WikiEarth” - J. Chambers, pat. pending)
- DAACS could provide links to other citizen science sites (eg. NPN)
- community interaction for assessing data quality

What opportunities do you see for enabling Science and Applications from the integration of current LP and ORNL DAAC products, services, or tools?

Detailed responses

- putting together multi-discipline data sets based on pre-set spatial units (e.g. watersheds, jurisdictions)... have interface suggest other datasets for that place (even outside NASA)
- cross-measurement access to all data (field, satellite, etc) acquired at a given location
- same granule-level, location-based tool available at all DAACS (cross-DAAC search)
- better visualization of uncertainty or error (QA) as part of search/order process
- better/consistent access to airborne data sets (geographic/temporal search)
- multipoint-based extraction from satellite data (available for MODIS, expand to other RS data)
- readily-accessible time series data from multiple RS sources
- drill-down from global to field data (e.g. Google body)
- enable “citizen science” (NPN, iPhen, Wiki’s)
- enlarge community by presenting case studies & training (ie. illustrate RS app to ecology) (target grad students and postdocs, undergrads)
- place-based “feed” of all data for a region (see #1)... see MIT media lab, etc. Crowdsourced; information on urban areas.
- links between LPDAAC & ORNL to support cal/val of satellite products using ORNL field data
- cross-DAAC collection visibility
- WikiEarth – contribute your own data; need to provide citation; source link. Especially for data that is not in publication
- common API’s for advertising & invoking services across tools
- cross-UWG convention (virtual?)
- capabilities for access to external datasets.
- ontology for data products at DAACs (semantics).

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- *Improved access to airborne data access, reformatting, and integration into tools. Standard products from airborne datasets.*
 - *Criticality of quantitative uncertainty + QA “usability” as part of data products ((per granule, per pixel)*
 - *WELD for ASTER (mosaicked L1b product) that users could subset & combine with other data products*
 - *Extend development of ASTER emissivity (ie. global, updated?)*
 - *Improved access to existing regional land cover information from LCLUC and other programs*
 - *multi-year 30m land cover for the globe; high-resolution vegetation properties*
 - *LPDAAC as repository for higher-level Landsat products. + Tools/services (e.g. QA/QC).*
 - *Carrots and sticks to encourage provision of QA + uncertainty.*
 - *NASA-wide algorithm repository*

How could the LP DAAC and ORNL DAAC collaborate to meet the modeling community's needs? What data products are required for evaluating and improving model performance? Are new observational campaigns needed to compile these products?

- Improved data sets for modeling community (smoothed, gap-filled, uncertainties quantified) (similar to MODIS4NACP) ; need to work with data provider implement.
- Difference between model validation data sets from driver datasets
- LP DAAC geared toward providing driver data; ORNL for validation data
- Possibility of consistent driver & validation data bundles to facilitate model intercomparison & validation
- Ongoing support for model intercomparison activities; may need systematic framework to support model intercomparisons or model/data validation. May need linkages to international data.
- long-term vegetation changes as validation of previous model predictions (DGVMs)
- Consider adaptation component (eg. Decision making from climate model runs)

Discussion points

How to reach out to ecology community? ... need training sessions @ ESA
Outreach to graduate students in classes.

Use of near realtime products? They can involve shortcuts to facilitate rapid production. Not critical for science community, important for ops. Could be important for field campaign response.